

the division or separation of the minute parts of the feather, and closed themselves together when their separation had been forcibly effected.*

If we examine the whole wing, and the disposition and connection of the feathers that compose it, we shall find that one great object of its structure is to render it impervious to the air, so that it may take most effectual hold of it, and by pushing, as it were, against it, with the wing, when the wing-stroke is downwards, to force the body forwards. A person expert in swimming or rowing may easily get an idea how this is effected, by observing how the pressure of his arms and legs, or of his oars, against the denser medium, though not in the same direction, carries him, or his boat, forwards. In the case of the bird, the motion is not backwards and forwards, but upwards and downwards, which difference, perhaps, is rendered necessary by the rarer medium in which the motion takes place.

To facilitate the progress of the bird through the air, the head usually forms a trenchant point, that easily divides it and overcomes its resistance; and often to this is added a long neck, which, in the case of many sea-birds, as wild geese and ducks, is stretched to its full length in flight; while in others, where the centre of gravity requires it, as in the heron, † bittern, ‡ &c., it is bent back.

The swiftness of the flight of some birds is wonderful, being four or five times greater than that of the swiftest quadruped. Directed by an astonishing acuteness of sight, the *aquiline* tribes, when soaring in the air beyond human ken, can see a little bird or newt on the ground or on a rock, and dart upon it in an instant, like a flash of lightning, giving it no time for escape. But though some birds are of such pernicious wing, there are others of the most gigantic

* Lit. Gazette, Oct. 11, 1834, 690.

† *Ardea cinerea*.

‡ *A. stellaris*.